

Peabody, Daniel (EGLE)

From: Peabody, Daniel (EGLE)
Sent: Tuesday, April 30, 2019 9:11 AM
To: Saric, James
Cc: Roberts, Keegan; Kirchner, Scott; John Kern; Bennett, Brian; Roth, Charles; Canar, John; Keiser, Jeff/MKE; Kline, David (EGLE); Walczak, Joseph (EGLE); Mills, Mark (DNR)
Subject: EGLE Comments on Area 1 PDIWP - Addendum 2, Section 6,7, and 8 SWAC Work Plan
Attachments: Kalamazoo River_OU5 Area 1_PDIWP Addendum 2_Section 6 7 8 SWAC Sampling 04302019.pdf

Jim,

Attached are EGLE's comments on the Area 1 PDIWP - Addendum 2, Section 6,7, and 8 SWAC Work Pan. The comments are the same set that I forwarded to you on April 22, since we were asked to expedite review of the document due to pre-planned field work. It took a few days to get a formal cover letter drafted, reviewed and out the door. My apologies for the delay.

Thanks,

Daniel Peabody

Environmental Quality Analyst
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
517-284-5072 | PeabodyD@Michigan.gov
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GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



LIESL EICHLER CLARK
DIRECTOR

April 30, 2019

VIA E-MAIL and U.S. MAIL

Mr. James Saric
Remedial Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3511

Dear Mr. Saric:

SUBJECT: Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Comments for Operational Unit 5 (OU5) Allied Paper, Inc./Portage
Creek/Kalamazoo River Superfund Site, Area 1 Pre-Design Investigation
Work Plan – Addendum 2, Section 6,7, and 8 SWAC Sampling (Work Plan),
dated April 8, 2019, Prepared by Wood Environment and Infrastructure
Solutions, Inc.

The detailed comments and summary provided below is the result of reviewing the subject Work Plan, and technical Work Group meetings, teleconferences and presentations between the United States Environmental Protection Agency (USEPA), International Paper, Georgia-Pacific and EGLE held to discuss results from the 2017 and 2018 field efforts and ongoing development of the Work Plan.

Detailed comments from EGLE regarding the report are provided as an enclosure to this letter and a brief summary of a few key issues identified in the enclosed are summarized below.

- The Work Plan would benefit from additional discussion around the number of samples proposed for each Section and what level of precision and power can be anticipated from the sample program. See General Comment #1 for more details.
- The proposed sampling strategy for Section 8 should include evaluating the current condition of the banks that were remediated and restored during the Plainwell Time Critical Removal Action (TCRA). Annual bank monitoring reports completed by EGLE and shared with the USEPA and Potentially Responsible Parties (PRP's) show that previously restored banks have failed, and residuals are in direct contact with the river. A Lessons Learned evaluation completed by EGLE following completion of the TCRA concluded that the restored channel in this area is too narrow and steep, which may result in prolonged instability through this section.

The need for corrective actions or large-scale repairs to correct channel instability through this Section should be openly discussed since leaving this

issue unresolved will lead to additional erosion and downstream transport of contaminated materials, prolonged monitoring, maintenance and interim repairs, and will undoubtedly negatively impact the effectiveness of the Area 1 remedy and future remedies that will be installed in downstream Areas. See General Comment #2 for more details.

- The Work Plan states, "The final SWAC remedial goal is 0.33mg/kg through natural recovery processes over time.", which is slightly different than language in the Records of Decision (ROD). Page 34 in the ROD discusses the Sediment Removal Areas and states, "The sediment FRG will be met by reducing the SWACs to 0.33 mg/kg through the removal of sediment and/or through natural recovery processes." See Specific Comment #2 for more details.

Several work plans have been recently submitted with the request for the Regulatory Agency's to accelerate review and comment, and field work has been implemented prior to comments being provided. EGLE requests that future work plans be submitted in a timely manner to provide the Regulatory Agency's time to thoroughly review the document, draft and submit comments, and time for the PRP's to address any comments and concerns prior to implementing field work.

The detailed comments in the associated enclosure covers the key issues identified by EGLE's review team. If there are any questions in regard to EGLE's comments related to the review of the document, please contact me at 517-284-5072; peabodyd@michigan.gov; or EGLE, Remediation and Redevelopment Division, P.O. Box 30426, Lansing, MI 48909-7926.

Sincerely,



Daniel Peabody
Environmental Quality Analyst
Remediation and Redevelopment Division
Michigan Department of Environment, Great
Lakes, and Energy

Enclosure

cc/enc: Dr. Keegan Roberts, CDM Smith
Mr. Scott Kirchner, CDM Smith
Mr. Brian Bennet, CDM Smith
Dr. John Kern, Kern Statistical Services
Mr. Chuck Roth, USEPA
Dr. John Canar, USEPA
Mr. Jeff Keiser, Jacobs Engineering
Mr. David Kline, EGLE
Mr. Joe Walczak, EGLE
Mr. Mark Mills, MDNR

**Kalamazoo River Superfund Site
Area 1 Pre-Design Investigation Work Plan – Addendum 2
Section 6,7, and 8 SWAC Sampling
April 8, 2019**

GENERAL COMMENTS

Commenting Organization: EGLE

Commenter:

General Comment #1: The addendum could benefit from a brief discussion of how the number of samples was derived, or similarly what level of precision and power can be anticipated from the sampling program. Following is some suggested language that I think should be inserted into section 2.3 or thereabouts. Really the DQO process switches gears abruptly from decision/risk management level information to how to homogenize a sample in the field.

The DQO should complete the aspects of study design by identifying the specific uses for the data, including the statistical precision and power that is expected.

For example, if it will take 60 years to detect a 5% rate of change, we probably don't like the design. The plan should provide this information.

Suggested Language and inputs to the design:

We chose to sample at 30 unique locations because with this number of samples, we expect to be able to reasonably test for goodness of fit of standard statistical distributions such as normal, gamma or others for selection of appropriate statistical methods generally available for estimating 95% confidence limits of the estimated SWAC. Based on our analysis of data collected at other points in time from Area 1 we expect the relative precision on the SWAC ([UCL-SWAC]/SWAC) to be approximately XX%.

The data will be used to compare pre-remedial to post remedial averages (SWACs) which are expected to change markedly in reaches where active remediation takes place. These data will provide the bases to detect a relatively large change in concentration due to implementation of the remedy of XX% with 80% power based on a two-sample test of change in mean concentration.

The post remedial data will also be used for estimating the rate of natural recovery through additional monitoring time steps within the long-term monitoring program. The average rate of recovery can be approximated by a first order rate equation ($y=C_0 \times e^{-kt}$) and after XX years, and monitoring in years x_0, x_1, \dots, x_n , we expect to be able to detect a $k=0.05$ (5% annualized recovery rate) with 80% probability (i.e. 80% power to reject the null hypothesis of no change when in fact there is a 5% rate of recovery).

Commenting Organization: EGLE

Commenter:

General Comment #2: The Pre-Design Investigation Work Plan – Addendum 2 Sections 6, 7, and 8 SWAC Sampling (Work Plan) fails to incorporate data and conclusions from the bank monitoring reports. The Department of Environment, Great Lakes and Energy (EGLE) survey data, photographic log and bank condition reports show that significant bank loss was observed within one year following construction completion, sections that immediately failed continue to fail, sections that were once stable are now showing signs of failure and residuals are in direct contact with the river as shown in the photo below.



Additionally, EGLE presented a Lessons Learned following completion of the former Plainwell dam TCRA which concluded that the channel width in the former Plainwell dam impoundment is approximately 55% the width of similarly steep reference reaches in the water shed, the former Plainwell dam impoundment is almost twice as steep as shallow reference riffles elsewhere in the watershed, and the channel may eventually be 150-feet wider than post-construction conditions.

The need for corrective actions or large-scale repairs to correct channel instability through this Section should be openly discussed since leaving this issue unresolved will lead to additional erosion and downstream transport of contaminated materials, prolonged monitoring, maintenance and interim repairs, and will undoubtedly negatively impact the effectiveness of the Area 1 remedy and future remedies that will be installed in downstream Areas. Please explain how the current bank conditions achieve the sediment-related Remedial Action Objectives (RAO) outlined in the Area 1 Record of Decision (ROD) including: RAO 1 - protect people who consume Area 1 Kalamazoo River fish from exposure to PCBs that exceed protective levels; RAO 2 - protect aquatic ecological receptors from exposure to concentrations of PCBs in sediment that exceed protective levels, and; RAO 3 - reduce transport of PCBs from Area 1 to downstream areas of the Kalamazoo River and Lake Michigan (RAO 4).

Commenting Organization: EGLE

Commenter:

General Comment #3: Updated sediment data in the two TCRA areas (the Plainwell impoundment and Plainwell No. 2 dam) is needed to evaluate post-removal conditions in

Sections 6, 8 and portions of Section 7. EGLE recognizes that a limited number of data points (13) were used to calculate the SWACs in Section 7 that are presented in the ROD.

Advancing cores to a pre-determined depth of 1-foot and focusing solely on calculation of the a SWAC may not be adequate if sampling indicates that ongoing natural recovery processes have not significantly lowered PCB concentrations in sediment and are insufficient to achieve final remedial goals, and removal actions are necessary. EGLE recommends that cores be advanced until refusal and samples collected deeper than 1-foot be held by the laboratory and analyzed in-case previously unknown “hot spots” are discovered or the SWAC calculated for the Section exceeds the sediment final remedial goal and remedial action is necessary to achieve the 0.33 mg/kg sediment cleanup goal.

Commenting Organization: EGLE

Commenter:

General Comment #4: While a random, unbiased sample plan may be appropriate to establish post-removal SWACs it may not be an appropriate sample strategy to evaluate the contaminant contribution from areas where bank failures are occurring.

SPECIFIC COMMENTS

Commenting Organization: EGLE

Commenter:

Section: 2.1

Page #: 2-1

Lines #: 3-4

Specific Comment #1: A TCRA was also completed at the former Plainwell No. 2 dam, which forms the boundary between Section 6 and 7, as shown on Figure 3-1 and 3-2.

Commenting Organization: EGLE

Commenter:

Section: 2.3

Page #: 2-1

Lines #: 5-6

Specific Comment #2: The ROD describes that, as part of the preferred sediment alternative (Alternative S-3A, Component #8), sediment surface-area weighted average concentration (SWAC) final remediation goals for certain Sections of Area 1 (namely the Remedial Reach and those Sections that comprise the remedial reach [parts of Sections 2 and 4, and all of Section 3] will be achieved through ongoing natural recovery processes, but does not make similar statements for other river Sections in Area 1. Component #8 states, “Calculations show that the surface weighted average concentration (SWAC) for the remedial reach will be reduced from 1.76 milligrams per kilogram (mg/kg) to 1.09 mg/kg following the remedial action (RA) construction work. This alternative relies on natural recovery processes to achieve the FRGs and remedial action objectives (RAOs) over time”.

The Work Plan states, “The final SWAC remedial goal is 0.33mg/kg through natural recovery processes over time.”, which is slightly different than language in the ROD. Page 34 in the ROD discusses the Sediment Removal Areas and states, “The sediment FRG will be met by reducing the SWACs to 0.33 mg/kg through the removal of sediment and/or through natural recovery processes. Please revise language in the Work Plan to match language in the ROD.

Commenting Organization: EGLE

Commenter:

Section: 2.6

Page #: 2-1

Lines #: 3-4

Specific Comment #3: Performance and acceptance criteria should be developed prior to executing field activities and not once results have been received.

Commenting Organization: EGLE

Commenter:

Section: 3.0

Page #: 3-1

Lines #: 2-4

Specific Comment #4: Please clarify what is mean by “SWACs calculated for Sections 6 and 7 (separately) will form baselines from which to compare future sediment SWAC results using the same methodology as part of long-term monitoring”.

Commenting Organization: EGLE

Commenter:

Section: 3.1 **Page #:** 3-1

Lines #: 4-6

Specific Comment #5: As stated in the Work Plan, the Visual Sample Plan software was used to produce the sample layout in the Work Plan and “... uses an algorithm to maximally avoid preexisting sample locations.” If the software considers preexisting (i.e. “historical”) sample locations when choosing a sample location is the sample grid truly unbiased and random? Or, are “preexisting sample locations” only those that are proposed in the Work Plan? Please clarify.

Commenting Organization: EGLE

Commenter:

Section: 3.1 **Page #:** 3-1

Lines #: 7-8

Specific Comment #6: Please clarify what is meant by “This sample design will be used for future LTM programs”.

Commenting Organization: EGLE

Commenter:

Section: 3.1 **Page #:** Table 3-1

Lines #: 10

Specific Comment #7: The SWACs developed for Sections 6,7,8 should be compared to the SWACs by Section for Area 1 provided in the Area 1 ROD in Table 1. Although the removal action is not specifically referenced in this sample plan, a post-removal SWAC for the Plainwell No. 2 dam TCRA is provided on page 17 of the ROD.

Commenting Organization: EGLE

Commenter:

Section: 3.1 **Page #:** Table 3-1

Lines #: 10

Specific Comment #8: Please provide the rationale for selecting 30 sample locations for each Section. What type of statistical precision does a sample size of 30 locations per Section provide?

While the goal of samples in Section 8 is to establish as post-removal SWAC, the goals in Section 6 and Section 7 may be different. Although, the goal(s) in Section 6 may also include comparing the SWAC developed in the Work Plan to the post-removal SWAC in the ROD, but the Work Plan does not reference the TCRA completed at the former Plainwell No. 2 dam. Is the sample program design (i.e. 30 cores at simple random locations advanced to a depth of 1-foot or until refusal) adequate to meet the goals of the pre-design investigation and requirements outlined in the ROD?

Commenting Organization: EGLE

Commenter:

Section: 3.1 **Page #:** 3-1

Lines #: 6-8

Specific Comment #9: Please describe the flow conditions during the time of the aerial survey that is being used to define the shoreline. How are differences observed between the ordinary high-water mark and the shoreline measured during the aerial survey rectified? How is the aerial survey being used to classify “soil” versus “sediment”?

Commenting Organization: EGLE

Commenter:

Section: 3.1.1 **Page #:** 3-2

Lines #:

Specific Comment #10: The Work Plan is not clear as to whether or not cores logs will generated and states, “Sediment cores will be processed in a field laboratory. The top 12 inches of each sediment core will be photo-documented prior to processing. Samples will be collected

from intervals 0-6 inches and 6-12 inches. Each sample will be thoroughly homogenized according to the USEPA Soil Sampling Operating Procedure (USEPA 2014). Samples will be sent to Pace Analytical in Green Bay, Wisconsin for analysis of total PCBs in accordance with the Multi-Area QAPP (Amec Foster Wheeler 2016)". Please clarify if boring logs will be generated as part of the field effort.

Commenting Organization: EGLE

Commenter:

Section: 3.1.1

Page #: 3-2

Lines #: 11

Specific Comment #11: Cores should be transported vertically and the disturbance of cores should be avoided to the extent practical.

Commenting Organization: EGLE

Commenter:

Section: Figures

Page #: Figure 3-3

Lines #:

Specific Comment #12: The downstream portion of Section 8 appears underrepresented in the sample plan. Figure 3-3 shows approximately 20 samples are proposed for the portion of Section 8 upstream of US-131 and 10 samples are proposed for the portion of Section 8 downstream of US-131. For comparison, the proposed sample layout in Section 6 and 7 seems to be more evenly distributed across each Section.